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ICE

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Ice

News Bulletin of the International Glaciological Society

Number 144 2nd Issue 2007

Contents

Cover picture: Part of a very proud IGS team with the ALPSP/Charlesworth Award for Best Learned Journal

Scanning electron micrograph of the ice crystal used in headings by kind permission of William P. Wergin, Agricultural Research Service, US Department of Agriculture

From the Editor

Dear IGS member

By the time you read this the last issue of 2007 should be published on the web and in the final stages of being printed and shipped to you and the hard copy should be on your desk at the end of December/beginning of January. We are of course very proud of this achievement, especially since the first issue of 2008 is well on its way to completion. We will have several articles published on the web on 1 January 2008.

In the last editorial I summed up the situation regarding the *Annals* and ISI Thomson. In this editorial I would like to discuss what our options are. But first I would like to tell you what the result was of the meeting delegates from ALPSP (myself included) had with Thomson at the Frankfurt book fair at the beginning of October.

Thomson has said they *might* create 'metrics' for ISI Proceedings. For metrics, read impact factor – however, this will not be the same as 'Web of Science' impact factor (will it be second class???); and make ISI proceedings forward searchable – we will know by the first half of 2008.

Following the meeting I discussed this at some length with other ALPSP delegates and with the representative from the International Water Association (IWA) Publishing in particular, whose long established journal *Water Science and Technology* suffered the same fate as the *Annals*. *Water Science and Technology* is published 24 times a year and has approx. 6500 pages per volume so can hardly be classified as a proceedings volume!

What options do we have? As I see it there are three options.

1. We can completely disassociate the *Annals* from the symposium (this is the route IWA have chosen). If we take this route, we will:
   - not mention the symposium anywhere in the *Annals*
   - remove the ISBN number that we have associated with the *Annals*
   - submit papers in the same way as to the *Journal of Glaciology*
   - change the editorial policy: make it an open submission, i.e. one does not need to attend the symposium to be able to submit to *Annals* (this may actually raise the standard of the *Annals*)
   - create a 'proper' proceedings volume that includes abstracts, first draft of submitted papers as submitted, i.e. unreviewed, no figure editing and no copy editing. We would include the programme and possibly a participants list. This we could publish online and possibly supply participants with a CD.

   Only these 'Proceedings' would be included in the registration price.
   What this means is that the IGS will in effect have two parallel publications.
2. Scrap *Annals* altogether as a peer reviewed journal, i.e. make it a 'proper' proceedings volume, include everything, i.e. abstracts, all submitted papers, unreviewed and not edited, the programme and possibly a participants list. This 'proceedings' volume would be included in the symposium registration price.

We would then ask those interested to submit their papers to the *Journal of Glaciology* and subsequently publish a list of those papers associated with the symposium in ICE. We would create a 'virtual' volume on the IGS website with the papers whose first draft was presented at the symposium with a 'print on demand' possibility.

3. We do nothing and wait for what Thomson decides to give us. This, in my mind, is not a viable option.

At present, option 1 seems most attractive to me but we have to be careful that we do not lose *Annals* subscribers. Should we decide to go down this route, you, our members have to be vigilant and make certain that your library continues to receive the *Annals*. The problem might arise if your library is purchasing the Annals on their 'book' budget (i.e. because it has an ISBN number) rather than on the 'journals' budget, the ISSN number. We would need to get them to switch over if this is the case and that is where we would ask our members to help us.

I would also like to ask whether you foresee that you, as individuals, would subscribe to the *Annals*? We would have a subscription price as well as individual issue price. Please contact us here at the IGS office or contact any Council member to express your thoughts on the issue.

Magnús Már Magnússson
Secretary General

THE BEST LEARNED JOURNAL OF 2007

The *Journal of Glaciology* has won the prestigious ALPSP/Charlesworth Award as the 'Best Learned Journal of 2007'. The award was presented to the IGS staff at a banquet on 13 September at Stationers Hall, London and was accepted by our Production Manager Christine Butler.

Christine with the ALPSP cup, flanked by Neil Charlesworth, chairman of the Charlesworth group which sponsors the awards and Alan Singleton, the chairman of the judging panel.

The award
The ALPSP/Charlesworth Award for Best Learned Journal recognizes design and production qualities in the printed journal, including the cover, layout and ease of use for both reader and librarian. Close attention is given to how closely it matches the needs and demands of its users. To be eligible, journals should consist primarily of peer-reviewed scholarly research articles. Once again, the standard of journals submitted was generally very high.

The panel of judges
Alan Singleton, Managing Director, Professional Engineering Publishing Ltd
Andrew Giaquinto, Art Director, Institute of Physics Publishing
John Jarvis, Senior Vice President, Europe; Managing Director, Wiley Europe Limited
Diana Leitch, Deputy University Librarian (Information Resources and Academic Support), The John Rylands University Library, University of Manchester
Sue Pandit, Dean of School, London College of Communication

The judges verdict
This year's winner of the ALPSP/Charlesworth Award for Best Learned Journal was the Journal of Glaciology, published by the International Glaciological Society which demonstrates excellent design and production standards and has a very dynamic feel. While the subject clearly lends itself to dramatic photography, the cover design with contrasting colours of the logo and photograph is very striking. The contents page is well laid out, the typography traditional but clear and both mono and colour illustrations easy to read. On a practical level, information about the journal eg parts, columns, dates, barcode, ISSN, subscriber and information for authors is clearly displayed; the paper is of good quality and weight and the journal holds open easily for the reader.

Thanks
The IGS thank all the authors, editors and reviewers who contributed to the Journal of Glaciology in 2007. Very special thanks go also to Judith Bastin and Sheila Betts for their prize-winning re-design.

JOURNAL OF GLACIOLOGY

Papers accepted for publication between 1 August 2007 and 30 October 2007. The papers are listed in alphabetical order by first author. Some of these papers have already been published.

Helgard Anschutz, Daniel Steinhage, Olaf Eisen, Hans Oerter and Lutz Eberlein
Temporal variation of accumulation patterns in western and central Dronning Maud Land, Antarctica

Ola Brandt, Jack Kohler and Mikael Lüthje
Spatial mapping of multiyear superimposed ice on the glacier Kongsvegen, Svalbard

Javier Chueca, Asunción Julián and Juan Ignacio López-Moreno
Recent evolution (1981–2005) of the Maladeta glaciers, Pyrenees, Spain: extent and volume losses and their relation with climatic and topographic factors

William Colgan and Martin Sharp
Combined oceanic and atmospheric influences on net accumulation on the Devon Island Ice Cap, Nunavut, Canada

Bea Csatho, Toni Schenk, C.J. van der Veen and William B. Krabill
Intermittent thinning of Jakobshavn Isbræ, West Greenland, since the Little Ice Age

Christophe Genthon, Pierre Lardeux and Gerhard Krinner
The surface accumulation and ablation of a coastal blue-ice area near Cap Prudhomme, Terre Adélie, Antarctica

Anthony J. Gow and Debra A. Meese
The distribution and timing of tephra deposition at Siple Dome, Antarctica: possible climatic and rheologic implications

Dorothy K. Hall, Richard S. Williams, Jr, Scott B. Luthcke and Nicole E. DiGirolamo
Greenland ice sheet surface temperature, melt and mass loss: 2000–2006

Roger LeB. Hooke and James Fastook
Thermal conditions at the bed of the Laurentide ice sheet in Maine during deglaciation: implications for esker formation

Angelika Humbert
Numerical simulations of the ice flow dynamics of George VI Ice Shelf, Antarctica

Takao Kameda, Hideaki Motoyama, Shuji Fujita and Shuhei Takahashi
Temporal and spatial variability of surface mass balance at Dome Fuji, East Antarctica, by the stake method from 1995 to 2006

E.C. King, A.M. Smith, T. Murray and G.W. Stuart
Glacier bed characteristics of Midre Lovénbreen, Svalbard, from high-resolution seismic and radar surveying

G.K.A. Oswald and S.P. Gogineni
Recovery of subglacial water extent from Greenland radar survey data

Frédéric Parrenin and Richard Hindmarsh
Influence of a non-uniform velocity field on isochrone geometry along a steady flowline of an ice sheet

Stephen F. Price, Howard Conway, Edwin D. Waddington and Robert A. Bindschadler
Model investigations of inland migration of fast-flowing outlet glaciers and ice streams

Carleen H. Reijmer and Regine Hock
Internal accumulation on Storglaciaren, Sweden, in a multi-layer snow model coupled to a distributed energy- and mass-balance model

Pierre-Francois Roux, David Marsan, Jean-Philippe Metaxian, Gareth O'Brien and Luc Moreau
Microseismic activity within a serac zone in an Alpine glacier (Glacier d'Argentiere, Mont Blanc, France)

Martina Schafer and Emmanuel Le Meur
Improvement of a 2D-SIA ice flow model: application to the Saint Sorlin Glacier, France

Elisabeth Schlosser, Hans Oerter, Valerie Masson-Delmotte and Carleen Reijmer
Atmospheric influence on the deuterium excess signal in polar firn: implications for ice-core interpretation

Shuhei Takahashi and Takao Kameda
Instruments and methods: Snow density for measuring the surface mass balance using the stake method

Jason F. Thomason and Neal R. Iverson
A laboratory study of particle ploughing and pore-pressure feedback: A velocity-weakening mechanism for soft glacier beds

David G. Vaughan, Hugh J.C. Corr, Hamish Pritchard, Andy Shepherd and Andy M. Smith
Flow-switching and water-piracy between Rutford Ice Stream and Carlson Inlet, West Antarctica

K. Virkkunen, J.C. Moore, E. Isaksson, V. Pohjola, P. Perämäki, A. Grinsted and T. Kekonen
Warm summers and ion concentrations in snow: comparison of present day with Medieval Warm Epoch from snow pits and an ice core from Lomonosovfonna, Svalbard

Edwin D. Waddington, Thomas A. Neumann, Michelle R. Koutnik, Hans-Peter Marshall and David L. Morse
Inference of accumulation-rate patterns from deep layers in glaciers and ice sheets

B.R. Williamson, K.J. Kreutz, P.A. Mayewski, N.A.N. Bertler, S.Sneed, M. Handley and D. Introne
A coastal transect of McMurdo Dry Valleys (Antarctica) snow and firn: marine and terrestrial influences on glaciochemistry

Qinghua Ye, Liping Zhu, Hongxing Zheng, Renji Naruse, Xueqin Zhang and Shichang Kang
Glacier and lake variations in the Yamzhog Yumco basin, southern Tibetan Plateau, from 1980 to 2000 using remote-sensing and GIS technologies

ANNALS OF GLACIOLOGY, VOLUME 48

The following selected papers from the Cryospheric Section of the IUGG General Assembly, held in the city of Perugia, Italy, 2–14 July 2007 have been accepted for publication in Annals of Glaciology *Vol. 48, edited by T.H. Jacka. The papers are listed in alphabetical order by main author.*

Edward E. Adams, Steven M. Jepsen and Bryan Close
A bonding process between grains in mechanically disaggregated snow

Stuart John Bartlett, Jean-Daniel Ruedi, Alasdair Craig and Charles Fierz
Assessment of techniques for analysing snow crystals in 2 dimensions

Francisca Bown, Andrés Rivera and César Acuña
Recent glacier variations at the Aconcagua basin, central Chilean Andes

Jean-Bruno Brzoska, Frederic Flin and Jean Barckicke
Explicit iterative computation of diffusive vapor field in the 3D snow matrix: some preliminary results for low flux metamorphism

Koji Fujita
Influence of precipitation seasonality on glacier mass balance and its sensitivity to climate change

H. Gerald Jones
From Commission to Association: The transition of the International Commission on Snow an Ice (ICSI) to the International Association of Cryospheric Sciences (IACS)

Rijan Bhakta Kayastha and Sandy P. Harrison
Changes of the equilibrium line altitude since the Little Ice Age in the Nepalese Himalayas

Fabio Ullmann Furtado de Lima and Leila M. Véspoli de Carvalho
Extreme intra-seasonal anomalies in the Amundsen and Bellingshausen sea ice area during the austral winter

Walter N. Meier and Julienne Stroeve
Comparison of sea ice extent and ice edge location estimates from passive microwave and enhanced-resolution scatterometer data

Marco Möller and Christoph Schneider
Climate sensitivity and mass balance evolution of Gran Campo Nevado Ice Cap, southwest Patagonia

P.R. Porter, A.J. Evans, A.J. Hodson, A.T. Lowe, and M.D. Crabtree
Sediment-moss interactions on a temperate glacier: Falljökull, Iceland

Julienne Stroeve, Allan Frei, James McCreight and Debjani Ghatak
Arctic sea ice variability revisited

Elizabeth R.Thomas, Robert Mulvaney and Eric W.Wolff
A change in seasonality in Greenland during a Dansgaard-Oeschger warming

More papers for *Annals* 48 will be listed in the next issue of *ICE*

ANNALS OF GLACIOLOGY, VOLUME 49

The following paper from the International Symposium on Snow Science, held at the Russian Academy of Sciences, Moscow, Russia, 3–7 September 2007, has been accepted for publication in Annals of Glaciology *Vol. 49, edited by Martin Schneebeli and Jerome B. Johnson*

Konosuke Sugiura and Tetsuo Ohata
Large-scale characteristics of the distribution of blowing snow sublimation

More papers for *Annals* 49 will be listed in the next issue of *ICE*

NEW ZEALAND SNOW AND ICE RESEARCH GROUP (SIRG)

New regional branch of IGS

In 2007, the International Glaciological Society council unanimously agreed that a new regional branch of the IGS would be formed for New Zealand. The new branch incorporates the New Zealand Snow and Ice Research Group (SIRG), comprising about 40 researchers and students from universities and research institutions. SIRG hosts an annual 2- or 3-day workshop during the austral summer (usually early February) and holds a monthly meeting by video conference. The workshops are held in the tradition of IGS regional branch meetings; informal, inexpensive and with an emphasis on student talks and work in progress. A visit to a nearby glacier usually takes place.

The next meeting will be held in February 2008 in the Canterbury Southern Alps within a few hours drive of Christchurch. International contributions are welcome. To receive information including conference circulars, subscribe to the SIRG email list at the following link http://lists.vuw.ac.nz/mailman/listinfo/sirg

Report on 2007 meeting at Mt Ruapehu, New Zealand

The 2007 workshop was hosted by Victoria University of Wellington at a ski lodge on Mt Ruapehu, the highest mountain in the North Island (2797 m). The workshop consisted of 20 presentations, a half-day discussion and a field trip. The programme and abstracts are available at Andrew Mackintosh's website: http://www.vuw.ac.nz/geo/people/andrew-mackintosh/index.html

Research on New Zealand glacier mass balance has developed in vigour over the last few years, and many contributions focussed on fresh empirical data collection and modelling. Wendy Lawson discussed a new glacier mass-balance project, which will involve collaboration with Chilean scientists.

Two presentations stood out: Trevor Chinn discussed the vulnerability of the tropical glaciers of Kilimanjaro and Rwenzori in a superbly illustrated and often hilarious mixture of science and travelogue. And Harry Keys from the Department of Conservation delivered an excellent after-dinner talk about hazards on Mt Ruapehu, which primed us for the field trip.

Field trip to Crater Lake, source of the 18 March 2007 lahar

A climb to Crater Lake, Mt Ruapehu is one of New Zealand's best day walks under normal circumstances, but our trip was timed to precede a lahar that drained the lake basin only a few weeks after our visit. Crater Lake is perched at ~2500 m, and is ~1 km in diameter. Small glaciers terminate in the lake, which maintains a year-round temperature of ~30°C. The mountain last erupted through Crater Lake in 1996, and a geologically weak tephra dam was created, raising the spectre of a future lahar. Catastrophic draining of the lake in 1953 caused a devastating flood, resulting in the Tangawai Disaster in which 151 people lost their lives. Although warning systems currently protect against such loss of life, there is still potential for lahars to cause extensive damage to property.

Around 30 participants climbed 600 vertical metres to Dome Shelter where Crater Lake looked very full and threatening, with sulphur deposits floating on the surface. Energetic participants helped out with Victoria University fiel0d work by assisting with the installation of a climate station and by re-drilling ablation stakes on a nearby glacier. The day was concluded by glissading down a soft snow slope and drinking wine on the deck of the ski lodge.

On 18 March 2007 the Crater Lake tephra dam burst, sending an estimated 1.3 million

cubic metres of water and volcanic debris down the Whangaehu River. Good management resulted in no loss of property or life, and an extensive scientific dataset on the flood was collected by several research institutions and universities.

Figure 1 Climbing up to Crater Lake, Mt Ruapehu.

Figure 2 Crater Lake constitutes a serious lahar hazard to the region surrounding Mt Ruapehu. Maintaining a year-round temperature of 30°C, the lake is partly dammed by a weak tephra deposit. Glaciers terminate at the lake margin to the right of the photograph.

Figure 3 The SIRG group poses for a photo on Dome (2672 m), Mt Ruapehu.

Figure 4 A view of Crater Lake several weeks after the SIRG visit. Shorelines in the centre of the photograph indicate a drop in lake level of 7 m associated with the 18 March lahar.

Andrew Mackintosh and Brian Anderson
Victoria University of Wellington, New Zealand
Wendy Lawson
Canterbury University, New Zealand

Contact: Andrew.Mackintosh@vuw.ac.nz

All photos by Andrew Mackintosh

BRITISH BRANCH ANNUAL MEETING 2007

Institute of Geography, School of Geosciences, University of Edinburgh, 12–13 September

The 32nd annual International Glaciological Society British Branch Meeting took place at the University of Edinburgh on Wednesday 12 and Thursday 13 September 2007. Attendance at the meeting was excellent, over 70 delegates were present and 39 oral and 11 poster presentations were given. The presentations covered a diverse range of topics in glaciology which were organised into seven sessions, including 'Ice dynamics and modelling', 'Antarctica' and 'Glacial geomorphology'. A humorous film of some recent field work in Greenland, shot and edited by Malcolm McMillan and starring Alun Hubbard, provided some light relief at the end of the first day and, with wine in hand, commenced the social side of the meeting. A wine and cheese reception was enjoyed at the Geography Department before a meal at B'est restaurant in the evening. Those with stamina then continued to sample some of Edinburgh's nightlife and various self-inflicted perils!

Figure 1 The annual IGSBB dinner at the B'est restaurant

John Glen awarded his annual conference prizes to Sam Roberson (University of Wales, Aberystwyth) and Stewart Jamieson (University of Edinburgh) for the best student oral presentation and the best student poster respectively. Sam gave a talk entitled 'Structural composition and sediment transfer in a composite cirque glacier: Glacier de St Sorlin, France' and Stewart's poster described 'The role of glacial erosion in limiting ice sheet extents'. Our congratulations are once again extended to them and to all who presented at the meeting for the high quality of their presentations.

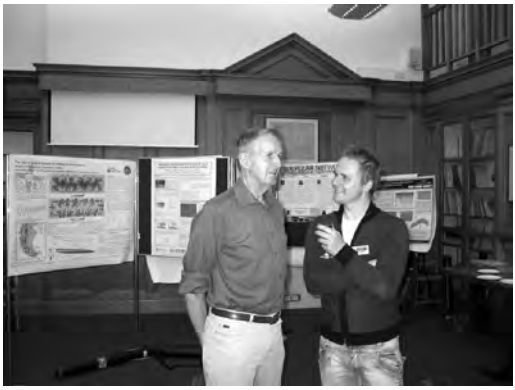

Figure 2 The poster session contained 11 excellent posters

Finally, we would like to thank all who attended for contributing to an informative and enjoyable meeting, and we look forward to seeing everyone next year in Swansea.

Kate Briggs, Malcolm McMillan and Steve Palmer
Photos by Brian Barrett

IUGG FIELD EXCURSION TO THE ITALIAN ALPS, JULY 2007

Following the IACS/International Glaciological Society-sponsored sessions at the IUGG Congress in Perugia in Umbria, Italy, participants met the excursion leader, Professor Claudio Smiraglia, at Milan Central Railway Station on 14 July. A four hour drive north to the Alps saw us crossing the Pleistocene moraines that partially dam Lago di Como and then travelling east through the Valtellina, a long structurally controlled glaciated valley to the exclusive ski resort of Bormio. A final steep climb along narrow winding roads brought us to the Rifugio dei Forni, a comfortable alpine lodge, within easy reach of Ghiacciaio del Forni, Italy's largest glacier. This glacier last advanced during the 1970s, in common with many alpine glaciers, but since then has undergone rapid and accelerating recession.

Figure 1 Telephoto viewe of the snout of Forni Glacier, showing recently exposed rock step.

The following morning saw the whole party assemble for either a walk to the glacier snout or a longer circuit along the flanks of the valley and across the middle reaches of the glacier. The longer walk initially took us through pine forest and along the Little Ice Age moraine on the true left bank of the glacier before dropping down on to the considerably lowered surface of the glacier. Discussions centred on the mass balance of the glacier (including the issue of unquantifiable ice loss by subglacial meltwater and the generation of large collapsed areas), the increasing relative height of the fine medial moraines, the structural complexity of the glacier (illustrated by the fine work done by two graduate students, Marta Senaldi and Marco Meda), the results of a recently installed meteorological station on the glacier surface, undertaken by Willy Diolaiuti, and the nature of basal debris in a rather thick zone at the base of one of the icefalls.

Figure 2 Willy Diolaiuti (right) and Claudio Smiraglia (centre) explaining the structure of Forni Glacier to Michael Hambrey (left).

The return journey followed the true right bank of the glacier along the Little Ice Age moraine crest and finally along the more rounded form of an older Holocene moraine of uncertain age. The day proved to be hot and sunny, although mercifully cooler and more tolerable on the glacier itself. Thirty-degree heat in a glacierised environment is not something glaciologists tend to expect!

A full day's drive took us back via the outskirts of Milan to Courmayeur at the foot of Western Europe's highest mountain (Monte Bianco/Mont Blanc; 4809 m). Our residence for the next couple of nights was another mountain lodge, the Rifugio Monte Bianco, facing the pinnacled arête of Aiguille Noire du Peuterey. From valley floor to the summit, the height difference is well over 3000 m. Several glaciers hang on the steep rocky slopes above Val Veny, whereas the debris-covered tongue of Glacier de la Brenva is now avalanche-fed and severed from its accumulation area, and the Glacier du Miage penetrates the Mont Blanc massif as a debris-covered valley glacier.

Figure 3 Lac du Miage, an ice-dammed lake near the snout of Glacier du Miage.

Figure 4 Broad view of debris-covered Glacier du Miage from the Tour du Mont Blanc footpath.

Although not as large as the glaciers on the north side of the massif, these glaciers are nevertheless spectacular; most are accessible only to the hardened mountaineer – and at some risk from ice and rock avalanches. Our day's activity was to observe these glaciers and landforms from a respectful distance. A four-wheel drive vehicle took us to a col above the 'rifugio', from where we set off on foot along a high-level path that forms part of the Tour du Mont Blanc and here rises to over 2400 m. Once again the weather was hot and sunny, although the highest peaks were wreathed in cloud. Nevertheless, spectacular views were obtained of the Mont Blanc massif, giving a bird's eye view of the glaciers, while the immediate surrounds were characterised by meadows rich with flowers and pine forest. Philip Deline of the Université de la Savoie, Chambéry, in France, provided us with an excellent overview of the glacial geomorphology of the whole valley.

Figure 5 Philipe Deline explaining the glacial geomorphology and history of the Mont Blanc/Mote Bianco area.

At the end of the terrace, the party dropped down to the Glacier du Miage itself, the site of a joint Dundee University (Scotland) and Milan University energy-balance project. Ben Brock and Claudio Smiraglia explained the ongoing work on the glacier, including monitoring the fluctuations of the well-known ice-contact/moraine-dammed Lac du Miage, a tourist hotspot, and the role debris plays in influencing the mass loss of the glacier. Interestingly, this glacier has not fluctuated much since the formation of the Little Ice Age moraine, unlike all the others in the region.

Figure 6 Ben Brock and Philip Deline discuss meteorological data from the meteorological station of Glacier du Miage.

The 1970s and 1980s saw thickening of the snout and partial breaching of the moraine (falling boulders leading to closure of the access road), but recent years have seen thinning of the whole tongue. Some of the party scrambled over the Little Ice Age moraine and inspected the group's lower weather station and other experiments, including Claudia Mihalcea's study of differential ablation of exposed ice cliffs.

The excursion party much enjoyed the hospitality of our Italian hosts, and with their non-Italian collaborators deserve our sincere thanks for the considerable effort in making the excursion so successful. Despite the small international contingent, the discussions were wide-ranging and fruitful, and we hope that new collaborative ventures will be forged.

Michael J. Hambrey
Aberystwyth University, Wales, UK

Figure 7 Members of the excursion pose in front of the Monte Bianco Massif.

SELIGMAN CRYSTAL FOR LONNIE G. THOMPSON

The Awards Committee unanimously nominates Lonnie Thompson, University Distinguished Professor, Byrd Polar Research Center and Department of Geological Sciences, the Ohio State University, as the next recipient of the Seligman Crystal. The Crystal is awarded for his pioneering work in the reconstruction of past climate from high-altitude ice cores in tropical and subtropical ice caps and glaciers. Professor Thompson has also been active in communicating the urgency and importance of global warming to policy makers and the general public.

Professor Thompson obtained his B.S. degree in geology from Marshall University, and received his MS and PhD degrees from the Institute for Polar Studies, Ohio State University. On completion of his PhD in 1976, he became a research scientist at the Byrd Polar Research Centre at Ohio State University. In 1974 Thompson's party had been the first (recorded) to set foot on the remote high-altitude Quelccaya ice cap in the Southern Andes of Peru. It took 9 years of inventiveness and persistence before the 1983 team, led by Thompson, collected a 1500-year ice-core record of tropical precipitation. This core was drilled using an innovative solar powered drill carried up to 19 000 ft by pack animals. Over his career Thompson has worked on the ice fields and glaciers of the Central Tibetan Plateau, the Southern and Central Andes of Peru and the Bolivian Altiplano, Alaska and Franz

Josef Land in the Russian Arctic, Western Greenland and the Eurasian Arctic ice caps, Western China and the Tian-Shan and Pamir Ranges, Tanzania's Kilimanjaro as well as the South Pole and Antarctic Peninsula. As a result of his leadership and perseverance, the world has evidence of an alarming warming trend in the tropical and subtropical regions that exceeds any normal variation seen in past centuries.

Approximately 50 research expeditions have been led by Professor Thompson to the remote highlands of 15 countries in five continents – this is an average of more than one per year! To support this work he has been awarded over 50 research grants from the NSF, NASA, NOAA and NGS. The results of the research team have been

disseminated in more than 200 refereed scientific publications and reports, including numerous papers in high profile journals. However it has been the struggle and success against all odds in the collection of this sensitive climatological data in adverse, high altitude conditions that has brought Professor Thomson to the attention of the general public and the media. He has been an outstanding role model for the highest achievement in science, for example, being chosen as America's Best in Science and Medicine by *Time* Magazine and CNN in 2001, and highlighted in K. Krajick's 'Ice Man: Lonnie Thompson Scales the Peaks for Science' in *Science* in 2002. Lonnie Thompson has participated in over 20 major projects concerned with communication of science to the public, including a book, *Thin Ice*, that is his biography, as well as an introduction to climate-change science. *Thin Ice: Unlocking the Secrets of Climate in the World's Highest Mountains*, by Mark Bowen was named Best Science book of 2005 by US National Public Radio's weekly environmental program, *Living On Earth*. Such high profile success has resulted in popularity as a speaker and Professor Thompson gave more than 120 invited lectures in the 6 years between 2001 and 2006.

In spite of the demands that public attention has placed on his time, Professor Thompson has served on numerous national and international panels on climate change, as well as on the editorial boards of *Quaternary Science Reviews*, *Geology* and *The Holocene*. He has served as an elected member of the governing Council of the International Glaciological Society and was the co-chief editor with his wife, Professor Ellen Mosley-Thompson, of *Annals of Glaciology* volume 43 in 2005. Remarkably he also finds time to serve on numerous internal committees of the Ohio State University.

Professor Thompson already has an impressive array of distinctions. In July 2007 he was awarded the National Medal of Science, an honour bestowed by the President of the United States on the recommendation of the US National Science Foundation to individuals in science and engineering who have made important contributions to the advancement of knowledge. Also in 2007 he was awarded, jointly with his wife, Professor Ellen Mosley-Thompson, the Roy Chapman Andrews Society Distinguished Explorer Award. He was elected a member of the American Philosophical Society in 2006. In 2005 he was elected to the membership of the National Academy of Sciences and the fellowship of the American Association for the Advancement of Science. He has been a fellow of the American Geophysical Union since 2001. He also received the prestigious Tyler Prize, sometimes characterised as the 'Nobel Prize' for Environmental Achievement, in 2005. In the past 6 years he has won accolades from other nations, accepting the Dr A.H. Heineken Prize for Environmental Science from the Royal Netherlands Academy of Arts and Sciences, the Vega Medal from the Swedish Society for Anthropology and Geography and the Commonwealth Award for Science and Invention. He has also received various honours from the universities with which he has been associated.

However, perhaps most impressive of all – bearing testimony to his skills as a scientific motivator, politician and diplomat – he has worked collaboratively for 30 years with Tibetan, Chinese, South American and Russian researchers in a way that is only possible if affairs are conducted with considerable international sensitivity and broad-mindedness. A measure of the respect with which he is held is shown by his appointment, in 2005, as the Co-director of Academics, Tibetan Plateau Research Institute, Beijing, China.

Pat Langhorne
for the Awards Committee of the International Glaciological Society

JOURNAL AND *ANNALS* BACK ISSUES FOR NEW/SMALL LIBRARIES

The IGS has been storing a large number of back issues of the *Journal* and *Annals* 'under the eves' in the SPRI building for a very long time. The fire authority has now deemed them a fire risk and also they are under threat of being destroyed by moisture. The IGS Council has agreed that we should offer back issues to new and/or small libraries that can ill afford to purchase a large number of back issues. This would be a way to reduce our storage problem and it would widen the circulation of 'sets of the *Journal*/*Annals*' and hopefully encourage more subscriptions. The only stipulation is that the 'recipients' would pay for the postage and would in some way acknowledge the donation by the IGS.

We would like to ask those of you who are in some way connected to libraries that may be potential recipients of such a donation to contact the IGS office as soon as possible.

CHANGE IN THE SOCIETY'S BANK DETAILS

The IGS has decided to change its bank. We are no longer with the National Westminster Bank but have opened accounts with the Bank of Scotland. Hopefully by the time you read this we will have currency accounts in US$ and in euros. This will enable you to send us your membership fees in any of three currencies: £, $ or €. As part of this we will be listing our fees and charges in those three currencies. If you require our bank details, please contact us on igsoc@igsoc.org and we will send them to you. We will of course include the details on all our invoices.

Our membership forms have our new details on them as well

Notes from the production team

In IGS publications, two-word phrases such as *ice core*, *sea ice* or *radio wave* will often be found both hyphenated and not hyphenated within the same paper – sometimes even within the same paragraph or sentence – which may seem perverse. But look beyond the appearance of randomness and there is a policy to be found here that has method and merit in it. Whether such a phrase is hyphenated or not depends on the grammatical function it serves. For example, in the statements *the ice core is situated in the permafrost, sea ice moves on the ocean surface* and *the radio waves are scattered*, the phrases in question function as compound nouns and are not hyphenated, in accordance with dictionary usage. But in the expressions *ice-core site*, *sea-ice motion* and *radio-wave scattering* they function as phrasal adjectives, i.e. they modify a noun, and we hyphenate them to aid readability. We follow the advice of the best style manuals on this, including *The Chicago Manual of Style* (see 15th edn, section 7.82–7.90).

Ken Moxham
Freelance editor

Corrections and errata

Granshaw, F.D. and A.G. Fountain. 2006.
Glacier change (1958–1998) in the North Cascades National Park Complex, Washington, USA
J. Glaciol. **52**(177), 251–256

Table 3 in the above paper reported the area change for glaciers in the North Cascades National Park from 1958 to 1998. Unfortunately, a formatting error was overlooked and a revised is Table 3 included below. Since the problem was formatting rather than numerical, the conclusions of the study are unaffected.

Table 3. Comparison of glacier change by size class for the Swiss Glacier Inventory (Table 2, SGI; Paul and others, 2004) and the North Cascades National Park Complex (NOCA). The period for the SGI is 1973–1998, while the period for NOCA, 1958 to 1998

	SGI			NOCA		
Class	Count	% total population	FAC	Count	% total population	FAC
km^2			%1953			%1958
0.0–0.1	164	17.5	–64.6	100	31.2	–12.6
0.1–0.5	448	47.8	–45.6	166	51.7	–11.4
0.5–1.0	131	14.0	–29.1	33	10.3	–7.3
1.0–5.0	141	15.0	–17.9	20	6.2	–3.7
5+	54	5.7	–8.2	2	0.6	–2.9

REFERENCE

Paul, F., A. Kääb, M. Maisch, T. Kellenberger and W. Haeberli. 2004. Rapid distintegration of Alpine glaciers observed with satellite data. *Geophys. Res. Lett.*, **31**(21), L21402. (10.1029/2004GL020816.)

ACKNOWLEDGEMENT

We thank Dr Graham Cogley for catching the error.

Fountain, A.G., M. Tranter, T.H. Nylen, K.J. Lewis and D.R. Mueller. 2004.
Evolution of cryoconite holes and their contribution to meltwater runoff from glaciers in the McMurdo Dry Valleys, Antarctica
J. Glaciol. **50**(168), 35–45.

A typographical error exists in Equation (2) on page 40. It should read,

$$M_t = M_0 + ai\frac{dz}{dt}\Delta t \qquad (2)$$

ACKNOWLEDGEMENT

The authors would like to thank Liz Bagshaw for noting the error.

INTERNATIONAL GLACIOLOGICAL SOCIETY

INTERNATIONAL SYMPOSIUM ON RADIOGLACIOLOGY AND ITS APPLICATIONS

Madrid, Spain
9–13 June 2008

CO-SPONSORED BY:

SCAR Spanish National Committee
Ministerio de Educación y Ciencia
Universidad Politécnica de Madrid
ETSI de Telecomunicación

SECOND CIRCULAR

October 2007

Registered Charity

INTERNATIONAL GLACIOLOGICAL SOCIETY
PRESIDENT: A. Ohmura
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IMMEDIATE PAST PRESIDENT: E.M. Morris

SYMPOSIUM ON RADIOGLACIOLOGY AND ITS APPLICATIONS
The International Glaciological Society will hold an International Symposium on Radioglaciology and its Applications in 2008. The symposium will be held in Madrid, Spain, from 9–13 June.

SYMPOSIUM ORGANIZATION
Magnús Már Magnússon (International Glaciological Society).

LOCAL ARRANGEMENTS COMMITTEE
Francisco José Navarro (Chairman), Javier Jesús Lapazaran, María Isabel de Corcuera, María Luisa Cuadrado, Jaime Otero, Francisco Machío, Ricardo Rodríguez, Javier Estrada.

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INFORMATION ABOUT THE SYMPOSIUM MAY BE OBTAINED FROM:
International Glaciological Society, Scott Polar Research Institute, Lensfield Rd, Cambridge CB2 1ER, UK. Tel: +[44] (0)1223 355 974; Fax: +[44] (0)1223 336 543
Email: igsoc@igsoc.org
Web: http://www.igsoc.org/symposia/
http://sympradar08.krios-hyperion.com/
available 22 October 2007

PARTICIPATION
This circular includes instructions for registration and for arranging accommodation both through the travel agency website. A registration form (available at the symposium website) is also included, though online registration is strongly encouraged. The registration and accompanying payment are due 17 March 2008. There is a surcharge for late registration. The participant's registration fee includes organization costs, a set of abstracts, the icebreaker, coffee breaks and lunch, the banquet, a 10 trip bus/metro ticket that will be distributed with the rest of the symposium material and a copy of the *Annals of Glaciology*.

Registration fees	€
Participant (IGS member)	375
Participant (not IGS member)	450
Student or retired IGS member	175
Accompanying person	175/125/75
Late registration surcharge (after 17 March 08)	100
Symposium study tour (estimate)	550

Registration refunds will be made according to date of notification. Cancellations made before 25 April 2008 will receive a full refund. Cancellations between 26 April and 23 May 2008 will receive a 50% refund. After 23 May it will not be possible to make any refund. A limited number of grants for free registration of potential participants, students in particular, will be available. More details will be given in the symposium webpage.

THEME
Radio echo-sounding of ice reveals the bed topography, the properties of the bed and the internal glacio-stratigraphy. In the 1970s and 80s the bed topography of the Antarctic and Greenland ice sheets were mapped using a relatively restricted range of frequencies, with analogue logging devices. Since then, ice-penetrating radar technology has developed, extending the frequency bands to target different parts and depths of glaciers, relating electromagnetic returns to the physical properties of the ice and bed, and using radar layers in forward and inverse models of ice flow.

The conference will encompass all aspects of radar-sounding of ice and glaciers and its applications to glaciology, earth science and climate studies. We will welcome studies from shallow and deep sounding of ice; how electromagnetic interactions affect satellite returns; satellite deep sounding of Earth and other planets; the physical interpretation of intra-glacial and basal returns; how crystal fabric affects electromagnetic wave propagation; snow and firn studies; estimation of accumulation rates from radar stratigraphy; synergistic coupling of radar sounding with other geophysical techniques; large-scale mapping and imaging of radar layers and basal reflections; electromagnetic modelling of radar sounding; flow modelling, dating and stratigraphic correlations from radar surveying.

TOPICS
The suggested topics include:

1. Deep sounding, including:
   Subglacial topography, ice-bed interface, bed structure, subglacial lakes, subglacial water channels, sounding subglacial material.
2. Internal structure, including:
   Internal stratigraphy and correlation of ice cores, detection of structures (buried crevasses, folding, faults, etc.), englacial water channels, polythermal structure, physical properties of ice (density-porosity, water content of temperate ice, etc.), electrical properties of ice, echo-free structure in ice.

3. Shallow sounding, including:
   Internal stratigraphy: snow, firn, superimposed ice, estimation of accumulation rates, sea ice.
4. Planetary/orbital sounding, including:
   Theoretical aspects, sounding ice masses from satellite, ice cover of Mars, Europa and Enceladus
5. Numerical modelling (direct and inverse problems), including:
   Ice flow, dating layers, inversion of flow parameters.
6. Instrumentation and processing techniques, including:
   Radar equipment (coherent radar, synthetic aperture radar, etc.), complementary geophysical techniques, processing of radar data.
7. Theoretical and empirical aspects of propagation of electromagnetic waves in ice, including:
   Influence of ice fabric and physical properties, volume and interface scattering.

SESSIONS AND POSTERS

Oral presentations will be held on four full days and one half-day. There will also be two poster sessions. The size of poster presentations will be given on the website.

PUBLICATION

Selected papers from the symposium will be published by the Society in the Annals of Glaciology. All papers (including those based on posters) will be refereed and edited according to the Society's regular standards before being accepted for publication.

PAPERS

(1) SUBMISSION OF ABSTRACTS

Participants who want to contribute to the Symposium should submit an abstract of their proposed presentation. This abstract must contain sufficient detail for its scientific merit and relevance to the symposium theme to be judged by the Editorial Board. A web site will be available from 1 December 2007 where authors can upload their abstract and all the relevant contact information. The abstract itself should not exceed 400 words. References and illustrations should not be included.

You will be required to enter all your details with the submission and in particular to state whether you intend to submit a paper for publication in the Annals of Glaciology. We will only solicit referees for abstracts that have explicitly stated that they intend to submit a paper. Referees are a scarce commodity and we do not want to trouble them unnecessarily.

Those that are unable to submit their abstract via the internet can submit electronic files on a CD or diskette to the IGS office where a member of staff will upload them onto the website.

LAST DATE FOR RECEIPT OF ABSTRACTS: 15 JANUARY 2008

Final versions of papers accepted for publication should not exceed five printed pages in the *Annals of Glaciology*. Extra pages will be charged at the rate of UK £90 per page. Papers with colour figures will accrue page charges, at the colour rate of UK £150 for all pages. Honouring page charges (also £90 per page) for the first five pages in encouraged.

(2) SELECTION OF ABSTRACTS

Each abstract will be assessed on its scientific quality and relevance to the Symposium theme. Authors whose abstracts are accepted will be invited to make either an oral or poster presentation at the Symposium and submit a paper for publication in the Annals of Glaciology. First or corresponding authors will be advised by 15 February 2008 of the acceptance or otherwise; other authors will not be informed separately. Authors who have not received notification by that date should contact the IGS office in Cambridge in case their abstract was not received. Acceptance of an abstract means that a paper based on it can be submitted to the Annals of Glaciology. Papers submitted for consideration in the Annals cannot be submitted to another publication as well. Note: abstracts alone will not be published in the Annals of Glaciology.

(3) DISTRIBUTION OF ABSTRACTS

A set of the accepted abstracts will be provided to participants upon registration on 8 June 2008.

(4) SUBMISSION OF PAPERS AND PUBLICATION

Manuscripts should be submitted as a PDF file to the IGS office by e-mail annals@igsoc.org stating clearly the abstract number in the file name and in the subject line of the e-mail. Papers should be prepared in accordance with the instructions sent to authors with the abstract acceptance notification and must be submitted as PDF's (portable document format). Authors who submit in other electronic formats will be asked to re-submit as PDF. All manuscripts should be submitted by 7 April 2008. ALL AUTHORS ARE EXPECTED TO ADHERE TO THIS DEADLINE. Papers will be refereed according to the usual standards of the Society before being accepted for publication. Final papers, based on presentations at the Symposium, which have been submitted

and accepted by the Editorial Board following review, will be published in English in the *Annals of Glaciology* (Vol. 50). Final, revised versions of papers must be submitted by 21 July 2008. Timely publication of the *Annals of Glaciology* will depend upon strict adherence to deadlines.

LAST DATE FOR RECEIPT OF PAPERS: 7 April 2008

LAST DATE FOR RECEIPT OF REVISED PAPERS: 21 July 2008

EXCURSIONS

MID WEEK FIELD TRIP:

Excursion to Toledo, a famous middle-age town not far from Madrid combining Christian, Muslim and Jewish architectures and cultures. Buffet dinner included.

Other options: Various short excursions are available. Information will be provided at the conference desk and at the travel agency website https://congresos.hostingtravel.com/registration/registration.asp?congress=30000000032&language=en&agency=ultramar_madrid, which will be available from 22 October 2007 onwards.

BANQUET to be held on Thursday evening, 12 June.

SYMPOSIUM STUDY TOUR – THREE DAYS
June 13-16, 2008:

GRANADA AND ALPUJARRA VALLEY:

The tour will include the visit of the magnificent city of Granada, that holds the well-known palace-fortress of La Alhambra (which stands out as the most famous example of Moorish architecture(, and a field trip to Alpujarra valley. The aim of the latter is to visit the western Sierra Nevada, where an interaction of late kilometre-size folds and faults determines the present-day relief. The impressive Padul-Niguelas normal fault is overprinted on the low-angle normal faults developed since Neogene, which are well exposed in the Alpujarra Valley.

The departure will be on June 13 in the late afternoon, upon completion of the symposium, arriving to Granada on the evening. The return trip from Granada will start on June 16 in the afternoon, arriving to Madrid in the evening. Lodging in Madrid during the night from 16 to 17 June will be provided. Approximate cost is 550€ per person, including bus transfer, guide, all meals, overnight stays in double rooms in Granada (3 nights) and Madrid (1 night upon return), and admission to monuments. Price based on 30 participants.

Participants should register, through the travel agency website, by 17 March 2007. Later registration will be possible, though subject to availability. Places are limited so register early.

ACCOMPANYING PERSONS PROGRAMME

The accompanying person registration fee (14 and over,€ 175; 10-13€ 125; 6-9€ 75; under 6, free) includes the icebreaker, the mid-week excursion and the banquet. A sightseeing tour of Madrid and short excursions near Madrid will be offered, at additional cost, through the travel agency website. Staff will be on hand at the registration/information desk during the conference and will assist with further arrangements.

LOCATION AND WEATHER

Spain covers an area of 505 990 km² (195 364 sq. miles), including the Balearic and Canary Islands and two small North African cities, Ceuta and Melilla. It occupies about 85% of the Iberian Peninsula, surrounded by the Atlantic ocean at the west and the Mediterranean sea at the east, and separated from France by the mountain chain of the Pyrenees. At the South, less than 13 km (8 mi) separate Spain from Africa in the narrowest area of the Gibraltar Strait. Spanish topography is characterised by its central plateau – la Meseta – with an average elevation of about 610 m (2000 ft), broken and surrounded by several mountain ranges, reaching altitudes up to 3478 m (11 411 ft). The variety of geographical features ensure pronounced regional climatic differences. The climate is humid and cool in the north-west and the north, Mediterranean in the east and south-east, Mediterranean-continental in the central plateau and quite dry and hot in the south. In Madrid area, daily mean temperature during June is 21ºC (70°F), with an average maximum of 27ºC (81°F) and an average minimum of 15ºC (59°F), and rains are occasional (typically 4 days in a month).

TRAVEL AND ACCOMMODATION

Spain is a member of the Schengen Treaty. Information about which nationalities need Visa, where and how to apply (including forms) is to be found at

http://www.mae.es/en/MenuPpal/Consulares/Servicios+Consulares/Informacion+a+Extranjeros/Visados/visas_emblondon.htm (English version)
http://www.mae.es/fr/MenuPpal/Consulares/Servicios+Consulares/Informacion+a+Extranjeros/Visados/visas_frances.htm (French version)
http://www.mae.es/es/MenuPpal/Consulares/Servicios+Consulares/Informacion+a+Extranjeros/Visados/Visados2.htm (Spanish version)

VENUE

The symposium is to be held at the School of Telecommunication Engineering of the Technical University of Madrid (http://www.etsit.upm.es/).

The Local Organizing Committee has reserved accommodation at the following hotels, located in Madrid downtown but not far from the university area, all of them having a good link by

underground and/or bus. All the listed prices are per room and per night w/breakfast, with single/double/triple occupancy. Taxes are included (rounded to the nearest integer).

Tryp Ambassador Hotel (****)	170/180€
Husa Moncloa Garden Hotel (****)	143/143€
Tryp Gran Vía OR Tryp Rex OR Tryp Washington hotels (***)	119/143€
Alexandra Hotel (**)	67/88/131€

Further details about the individual hotels can be found on the travel agency website https://congresos.hostingtravel.com/registration/registration.asp?congress=30000000032&language=en&agency=ultramar_madrid where it is also possible to make the booking. For further information about booking of accommodation please contact Ultramar Express at
E-mail: SympRadar08@ultramarexpress.com
Phone: + 34 93 482 71 40
Fax: +34 93 482 71 58

It is possible to book into hostels (see e.g.: http://www.hostels.com/es/es.ma.html) at a cheaper rate, but this must be done by the individual participants themselves.

IMPORTANT DATES

Abstracts due	15 Jan 08
Notification of acceptance	15 Feb 08
Pre-registration due	17 March 08
Papers due	7 April 08
Deadline for full refund	25 April 08
Deadline for partial refund	23 May 08
Registration	8 June 08
Conference starts	9 June 08
Symposium study tour starts	13 June 08
Final revised papers due	21 July 08

REGISTRATION

Registration will be through the travel agency website, https://congresos.hostingtravel.com/registration/registration.asp?congress=30000000032&language=en&agency=ultramar_madrid which will be available from 22 October 2007 onwards. It will be possible to reserve and pay for accommodation, field trips and various other things through this site as well.

A hard copy of the registration form will be sent out via regular mail along with this circular. Nevertheless, registration through the web is strongly encouraged.

News

Obituary: Louis Lliboutry, 1922–2007

Louis Lliboutry died on 20 October 2007 in his home town of Corenc, near Grenoble, France.

He was born in Madrid and studied at the École Normale Supérieure in Paris. He obtained his Doctorat d'Etat in 1950 under the supervision of L. Neel (Nobel Prize). The subject of his thesis was the modification of metal magnetism due to shocks. At this time Dr Lliboutry was a teaching assistant at Grenoble, where he discovered alpinism and mountain skiing.

He then spent 5 years in Chile as a professor at the University of Santiago. As a scientific, he was a member of the successful French expedition to Fitz Roy in 1953.[1] The first detailed topographic and geological maps of the area were published from his own measurements and field observations and aerial photos. At that time he began to work on glaciers, understood the origin of 'penitents',[12] studied the development of rock glaciers in the dry Andes and wrote his first treatise on Glaciology in Spanish.[2]

Louis Lliboutry came back in France in 1956 and became director of the first Laboratory of Glaciology in 1958, which was at that time the Laboratoire de l'Aiguille du Midi, located in the Alps at an elevation of 3500 m. This building is now the Refuge des Cosmiques, where the LGGE maintained some measurements on atmospheric chemistry. The laboratory was then to be located in downtown Grenoble before moving on to the University campus in 1984. Dr Llaboutry was the director of the laboratory for 25 years. He did much pioneering research in glaciology, including work on basal sliding and the mass balance of temperate glaciers, the rheology of ice and the temperature profile of ice sheets.

Louis Llaboutry was a great theoretician but also had a unique sense for field measurements (Chili, Groenland, Svalbard) and instigated many expeditions on Alpine glaciers. He created this spirit at LGGE, where field or laboratory measurements were always conducted in parallel with more theoretical work. He published his famous *Traité de Glaciologie* in 1964 and 1965,[4] which remains a reference text book for glaciologists and students. He participated in the creation of the Association Nationale pour l'Etude de la Neige et des Avalanches (ANENA) in 1971 after a dramatic avalanche at Val d'Isère and was President of its scientific and technical committee for many years.

His work was recognized by the award of the Seligman Crystal in 1993. Professor Lliboutry was an honorary member of the International Glaciological Society.

Glaciology was not his only field of research. His interest also extended to the wider field of geophysics[5–10] and he helped to create the Laboratoire de Géophysique Interne et Tectonophysique at Grenoble with G. Perrier. He was president of the European Geophysical Society for 2 years during 1976–8. He was involved at the beginning of geophysics teaching at Grenoble (1959), which is now part of the Observatoire des Sciences de l'Univers. One of his most innovative contribution in geodynamics was, in 1972, the first estimation of the tectonic plates movement based on the No Net Rotation concept.[11]

In Professor Lliboutry, we have lost an enthusiastic and truly outstanding glaciologist. We would like to express our sympathy to his wife Claude, his two children and all his friends around the world.

Michel Fily, Director LGGE,
on behalf of the LGGE members

1. *Estudio cartografico, geologico y glaciologico de la zona del Fitz Roy*, 1952, Buenos Aires, 62 paginas, 24 laminas, 1 mapa
2. *Nieves y glaciares de Chile, fundamentos de glaciologia*, 1956, Ediciones de la Universidad de Chile, 471 paginas, 2 mapas
3. *Physique de base pour biologistes, médecins et géologues*, 1960, réédité en 1963, Masson, Paris, 421 pages.

4. *Traité de glaciologie*, 1964 et 1965, Masson, Paris, 2 tomes, 1040 pages.
5. Contribution au *Traité de géophysique interne*, 1973, Coulomb et Jobert éditeurs, Masson, Paris
6. *Tectonophysique et géodynamique*, 1982, Masson, Paris, 339 pages
7. *Very slow flows of solids*, 1987, Kluwer Academic Publishers, 510 pages
8. *Sciences géométriques et télédétection*, 1992, Masson, Paris, 289 pages
9. *Géophysique et géologie*, 1998, Masson, Paris, 462 pages
10. *Quantitative Geophysics and Geology*, 2000, Springer, 480 pages (translation of 9)
11. Plate movement relative to rigid lower mantle, 1972, *Nature*, **28**(5464).
12. *L'origine des pénitents de neige*, 1953, C.R.Ac.Sci. Paris, and The origin of penitents, 1954, *J. Glaciol.*

And more than 150 articles…

AN INTRODUCTION TO THE UK POLAR NETWORK

The UK Polar Network is a national committee of the Association of Polar Early Career Scientists (APECS). APECS is a new international organisation, endorsed by IPY, with a mandate to 'shape the future of polar sciences'. It includes the IPY Youth Steering Committees, and has two concerns: firstly, to raise the profile of early career scientists through networking and career development activities; secondly, to harness these early career scientists for education and outreach activities. An interim executive committee is in place, supported by a full time coordinator, responsible for creating a formal, democratic governance structure over the next 6 months.

APECS draws together many national groups, such as the UKPN, and disciplinary groups, such as the Permafrost Young Researchers Network, into one coherent organisation with the same aims and communication channels. Many of these groups have been tremendously successful so far and will gain enormously from coming together in this way. The UKPN is just one example of what APECS is doing worldwide.

The UKPN, as it exists today, was founded at the Scott Polar Research Institute (SPRI), Cambridge in April 2007. Southampton University geography undergraduate James Cheshire called a meeting to initiate the activities of the IPY Youth Steering Committee UK, as it was clumsily named. Around 20 masters, PhD and postdoctoral level scientists from a variety of disciplines, each with a keen interest in IPY activities and the Polar Regions, were in attendance. The name was changed to UKPN, to ensure that people did not feel excluded on the basis of age and to allow the network to live on after IPY has ended. Our aims were established to tie in with APECS and IPY YSC and working groups were formed to achieve these aims. James was joined on the committee by Liz Thomas (from the British Antarctic Survey), who heads the UKPN career development activities; Helen Freeman (Swansea University) took up the position of secretary; SPRI students Cameron Rye, Narelle Baker and Ruth Mugford also signed up as Web development, Funding and Temporary Education and Outreach coordinators respectively. Ruth has since been succeeded as Education and Outreach coordinator by Emma Irvine (Reading University), although she has remained on the committee. Kate Hendry (Oxford University) has also joined the committee. Since April the network has grown at a remarkable rate. We have over 100 members on our mailing list, an education and outreach programme, a series of networking events, a new website and our own quarterly newsletter.

The first UKPN network meeting was held on 15 June 2007 at BAS. It was a highly successful and enjoyable day, attended by around 90 polar early career researchers, expedition leaders and educators from a variety of disciplines. Due to sponsorship from The John Lewis Partnership, we were able to keep the day free (including the all important free food and wine) and provide travel assistance to attendees. There was a fantastic programme of invited speakers who gave non-specialists an overview of their subject area. Melianie Raymond filled us in on IPY YSC, followed by Rob Bingham's talking on his time spent in the Canadian archipelago. SPRI Social Scientist Martina Tyrell gave an enlightening talk on the importance of being aware of the culture of people living in the Polar Regions, and its relevance for scientists researching these areas. This was followed by a talk from Eleanor Peers, also of Cambridge, on 'Siberian Social Science'. Bob Hawley gave a useful and entertaining presentation on 'Carving out a niche in polar research'. Colin Summerhayes gave an overview of the activities of SCAR (Scientific Committee on Antarctic Research) and Sally Poncet, owner of Green Island in the Choiseul Sound and co-author of 'A Visitors Guide to South Georgia' and

'Antarctic Encounter: Destination South Georgia' talked about her long term field studies surveying the wildlife in South Georgia. We were then treated to some highly entertaining BAS archive footage, which if nothing else has inspired us to always take a picture of the Queen when travelling to Antarctica! BAS kindly allowed us a tour of the facilities, including a rather chilly trip to the freezers. There was an exciting (and noisy) poster session, with around 30 posters bought by the attendees, leading to useful meetings between researchers. The day ended with a fun (and mobile) conference dinner by the river, with everyone switching seats after each course so we could chat to more people than the usual dinner set up allows, and work off some of the calories at the same time! The next UKPN Network day will be held on 15 November 2007 at UEA, Norwich.

Despite the inevitable summer slowdown, the UKPN remains active. Significant funding from SCAR and IASC is enabling us to be the lead YSC organising the IPY Early Career Polar Researchers Workshop, St Petersburg, on 7 July 2008, which is to be held immediately prior to the SCAR/IASC Open Science Conference. The day is open to early career researchers from all over the world and will include invited science speakers, a mentoring programme, careers advice and social activities. In addition to this, as a result of UKPN advice, all oral sessions at the main conference will have at least one graduate student presenting their work.

Other upcoming activities include a presence at RGS–IBG Explore 2007 conference in November. This is the UK's most important expeditionary conference, and a great chance to recruit members of the expedition community and inform them about Polar research.

Our education and outreach group are in the midst of organising school visits to enthuse young people about polar research – a key activity for raising the standard of future researchers. As such, our education programme is aimed at four different age groups. Primary schools will be invited to carry out art projects and some hands on classroom based science experiments. Lower secondary students (11–14-year-olds) will have a chance to learn about the different fields of polar research, and will be pointed towards blogs written by polar researchers and those working in support careers. Upper secondary students (15–18-year-olds) will be offered career advice, including suitable subjects for the different branches of polar research as well as support careers. Undergraduates are invited to join the UKPN and will be kept informed of postgraduate places as well as any opportunities to join researchers on fieldwork or work on previously collected data sets.

The Education and Outreach Working group are also looking to run an event at the BA Festival of Science, Liverpool, in 2008, which will be our opportunity to inform members of the public and school leavers about the cutting edge research being carried out as part of the IPY. More outreach, this time to the wider science community, will occur in the form of an article for Earthzine, a new online magazine about earth observations. The article will cover the contributions of early career scientists, particularly those based in the UK, to the IPY through fieldwork, jobs and youth steering committees.

After all this, I can hear you asking about how to be involved. If you are an early career researcher (undergraduate to postdoctoral) based in the UK, you should join our mailing list and then it's up to you. Come along to our network days, volunteer to get involved with schools work, outreach activities, web development, organising network events, write a blog, keep us informed about postgraduate places in your department, get involved in producing the newsletter….

If you are a not-so-early career researcher you can also be involved – you can join our mailing list, give talks at our network events (we still need speakers and mentors for St Petersburg), let us organise network days in your department, tell us about postgraduate and postdoctoral positions, tell us if you have opportunities for an undergraduate to carry out dissertation research with you, involve early career researchers in your conferences (either as presenters or session chairs) and let your students know about us. And whoever you are, if you know of any potential funding sources please let us know (yes I know it's hard to come by!).

We would like to thanks all the organisations that have assisted us so far, namely BAS, IASC, The John Lewis Partnership, SCAR, SPRI, and UEA and the many individuals who have given their time and energy.

We are more than happy to answer questions, so if you want to be involved or want any more information, feel free to email Helen.Freeman @polarnetwork.org.

James Cheshire, UKPN Coordinator
Helen Freeman, UKPN Secretary

Useful Websites
UKPN: www.polarnetwork.org
APECS: http://arcticportal.org/root/home/apecs
Original YSC Proposal:
http://classic.ipy.org/development/eoi/proposal-details.php?id=168
International YSC:
http://www.ipyyouth.org/home.html

Recent meetings (of other organizations)

Report on the GLIMS Workshop, 6 July 2007, Perugia, Italy

The shrinkage of glaciers is global, fast and accelerating, making it increasingly important to complete and speed up global glacier mapping efforts. In this context, members of the GLIMS consortium met to discuss issues facing the Global Land Ice Measurements from Space (GLIMS) project.

This GLIMS workshop addressed two broad categories of issue: (1) How GLIMS relates to other international monitoring programmes and (2) the status of the current GLIMS inventory and how best to expand it. Michael Zemp began the morning with a summary of global glacier monitoring efforts, including the World Glacier Monitoring Service (WGMS) and GLIMS, and links to other organisations such as the Intergovernmental Panel on Climate Change (IPCC), the Global Terrestrial Observation System (GTOS), the Global Climate Observation System (GCOS), the Global Terrestrial Network for Glaciers (GTN-G) and Glacier and Permafrost Hazards in Mountains (GAPHAZ). He reiterated the strong working relationship between WGMS and GLIMS/NSIDC and pointed out that these efforts should be professionalised and based on a secure foundation of funding.

Frank Paul gave a summary of the GlobGlacier project, a new activity within the European Space Agency's Data User Element programme. This 3-year project aims to establish services for operational glacier monitoring from space, using and complementing the GLIMS infrastructure. GlobGlacier will focus on mountain glaciers and will start late summer 2007.

Bruce Raup gave an update on the contents of and Web-interfaces to the GLIMS Glacier Database. As of July 2007, the database contains data on over 58 000 glaciers. The Web-based interfaces include an interactive map application as well as a text-based search tool (e.g. to be able to search by glacier name or size). He also showed two ways to search for ASTER imagery over glaciers: (1) a layer in the MapServer application and (2) a layer using Google Earth. He concluded by showing some new Web-based tools for Regional Centers.

Atsumu Ohmura summarised the status of global glacier inventories and emphasised the need to complete them quickly.

Andreas Ahlstrøm presented PROMICE, a new monitoring programme for the Greenland ice sheet being undertaken by the Geological Survey of Denmark and Greenland. The programme has wide scope and involves modelling, remote sensing and in situ measurements.

Much of the afternoon was dedicated to discussion of technical challenges with glacier mapping from remote sensing data. Tobias Bolch, of the Technical University of Dresden, Germany, presented results of their study of the Khumbu Glacier and summarised the difficulties they faced with geolocation and calibration of digital elevation models (DEMs). This led to a productive open discussion of glacier mapping techniques and tools, quality control, DEM generation and evaluation, and problems of varying definitions of various glaciological terms and the standardisation of the calculation of certain parameters such as glacier area and length. The discussion of DEMs touched on several commonly used tools for creating them. Silcast produces reasonable DEMs but the morphometric parameters are frequently not realistic. PCI Geomatica produces artefacts, even with the use of ground control points (GCPs). ENVI produces aesthetically pleasing DEMs but there is no way currently to find out where it interpolated to fill in voids due to poor correlation. DEMs produced from these different commercial packages vary greatly depending on region and software package.

In order to compare glacier analysis results from different analysts, it is imperative that common parameters be produced according to a single definition. For simpler parameters (such as glacier area), GLIMS should begin with the WGI definitions and expand the lexicon from there.

The workshop concluded with an open discussion of how to integrate GLIMS and WGMS efforts into GTN-G and other international programmes.

See http://glims.org/ for more information.

Bruce H. Raup
National Snow and Ice Data Center, University of Colorado, Boulder, CO

Glaciological diary

** IGS sponsored * IGS co-sponsored

2007

2–5 August
Geodiversity of Polar Landforms
IAG/AIG Regional Conference on Geomorphology
Longyearbyen, Spitsbergen
Contact: Agata Buchwal (kamzik@amu.edu.pl)

6–14 August 2007
33rd International Geological Congress
Oslo, Norway
See http://www.33igc.org/

15–16 August
IODP Topical Symposium: North Atlantic and Arctic Climate Variability
Bremen, Germany
See http://www.iodp.org/topical-symposium

24 August 2007
UK participation in the Greenland ice core drilling project NEEM
Meeting at British Antarctic Survey, Cambridge
Contact: Regine Röthlisberger, BAS (rro@bas.ac.uk)

25–26 August 2007
Southern Ocean Physical Oceanography and Cryosphere Linkages project (SOPHOCLES) meeting
Geophysical Institute, University of Bergen, Bergen, Norway
See http://clic.npolar.no/theme/sophocles.php

26–31 August 2007
10th International Symposium on Antarctic Earth Sciences
University of California, Santa Barbara, USA
See http://isaes2007.geol.ucsb.edu/index.html

27–31 August
Glaciers in watershed and global hydrology
Obergurgl, Austria
Sponsored by International Commission on Snow and Ice Hydrology and Commission for the Cryospheric Sciences Contact: Regine Hock; Tomas Johannesson, Reykjavik; Gwenn Flowers, Vancouver; Georg Kaser, Innsbruck

29–31 August
Polar Dynamics: Monitoring, Understanding, and Prediction
Open science conference
Geophysical Institute, University of Bergen. Allegt 70, N-5007 Bergen, Norway
See: http://www.gfi.uib.no/conference2007/info.htm
E–mail: conference2007@gfi.uib.no

31 August–1 September 2007
Workshop on the latest advances of remote sensing tools for monitoring hazardous glaciers
Macugnaga, Italy
See http://www.galahad.eu/ and click on 'Macugnaga Workshop'

3–7 September
****International Symposium on Snow Science, Moscow, Russia**
Secretary General, International Glaciological Society, Lensfield Road, Cambridge CB2 1ER, UK
Web: http://www.igsoc.org/symposia

5–8 September
International Forum for Research into Ice Shelf Processes (FRISP)combined with the West Antarctic Ice Sheet (WAIS) Initiative
Algonkian Regional Park in Sterling, VA, USA
Contact: Adrian Jenkins (a.jenkins@bas.ac.uk)

11–14 September
The Annual Remote Sensing and Photogrammetry Society Conference
Special session under the context of Remote Sensing and Photogrammetry in Polar Regions
School of Civil Engineering and Geosciences, Newcastle University
See http://www.ceg.ncl.ac.uk/rspsoc2007/

11–22 September
Ice sheets and glaciers in the climate system
Karthaus, Italy
This summer course is meant for PhD students who work on a glaciology-related climate project.
See: http://www.phys.uu.nl/~wwwimau/education/summer_school/

12–13 September
***IGS British Branch meeting**
University of Edinburgh, Edinburgh, UK
See http://www.geos.ed.ac.uk/research/eeo/events/igsbbm07
Contact: Steven Palmer, Mal KcMillan and Kate Briggs; igsbbm@staffmail.ac.uk

15 September
SEDIBUD Second workshop
Working Group on Sediment Budgets in Cold Environments
Abisko, Sweden
See http://www.geomorph.org/wg/wgsb.html
Contact: Achim Beylich (achim.beylich@ngu.no) or
Scott Lamoureux (lamoureu@post.queensu.ca)

15–17 October 2007
International conference 'Managing Alpine Future'
Congress Innspruck, Austria
See http://www.alpinefuture.com/

16–18 October 2007
Ny-SMAC (Ny-Alesund Science Managers Committee) Seminar, an open meeting
Møller Centre, Cambridge, UK
See http://www.antarctica.ac.uk/nysmac/

22–26 October
2nd Asia CliC Symposium
CAREERI, Chinese Academy of Sciences, Lanzhou, China
See http://www.casnw.net/clic/Asia_clic.html

25–27 October
***IGS Nordic Branch meeting**
Department of Earth Sciences, Uppsala University, Sweden
Contact: Rickard Pettersson (rickard.pettersson@geo.uu.se)
See http://www.geo.uu.se/glaciology/NIGS/

26–27 October
Northwest Glaciologists (NwG) meeting,
Portland, Oregon, USA
See
http://www.glaciers.pdx.edu/NwG/default.html

15 November
UK Polar Network (UKPN) Day
University of East Anglia, Norwich, UK
Contact: Emma Fiedler (e.fiedler@uea.ac.uk)

24–25 November
UKPN Session at RGS Explore Conference
Royal Geographical Society, London, UK
Contact: James Cheshire (jc905@soton.ac.uk)
See http://www.rgs.org/explore

11 December
CliC Sea Ice Meeting,
Fall AGU meeting, San Francisco, USA
Contact: Tony Worby (a.worby@utas.edu.au)

2008

7–9 January
International Workshop on Snow, Ice, Glacier and Avalanches
Mumbai, India
Contact: Dr G.Venkatraman (gv@iitb.ac.in)
See http://www.csre.iitb.ac.in/csreworkshop/index.html

28 January–17 February
Workshop on the dynamics and mass budget of Arctic glaciers
GLACIODYN (IPY) meeting, Obergurgl, Austria
Convenors: J. Oerlemans (j.oerlemans@phys.uu.nl) and C.H. Reijmer (c.reijmer@phys.uu.nl)
See: http://www.phys.uu.nl/~wwwimau/research/ice_climate/iasc_wag/activities.html

5–7 March
The 38th Annual International Arctic Workshop
Institute of Arctic and Alpine Research (INSTAAR), University of Colorado, Boulder, CO, USA
Contact email: ArcticWS@colorado.edu
See: http://instaar.colorado.edu/AW

6–7 March
Alpine Glaciological Meeting
Chamonix, France
Contact: Christian Vincent email: vincent@lgge.ujf-grenoble.fr

10–13 March
International Symposium on Mitigative Measures against Snow Avalanches
Egilsstadir, Iceland
See:
http://www.orion.is/snow2008/organizer.html

26–28 March
Workshop on mass balance measurements and modelling
Skeikampen, Norway.
Convenor: Glacier section at Norwegian Water Resources and Energy Directorate (NVE).
See http://www.nve.no/mbworkshop

13–18 April
European Geosciences Union
General Assembly 2008
Vienna, Austria
See http://meetings.copernicus.org/egu2008/

4–11 May
New Generation of Polar Researchers (NGPR)
Symposium for Early Career Scientists Conducting Polar Research during the IPY
La Foret Conference Center, Colorado Springs, CO, USA
See http://www.disccrs.org/ngpr/

26–30 May
Interpraevent 2008 – 11th International Symposium
Dornbirn Exibition Centre, Dornbirn, Austria
See: http://www.interpraevent2008.at/

28–30 May
Eastern Snow Conference
Fairlee (Lake Morey), Vermont,, USA
See http://www.easternsnow.org/

9–13 June

****International Symposium on Radioglaciology and its Applications, Madrid, Spain**
Secretary General, International Glaciological Society, Lensfield Road, Cambridge CB2 1ER, UK
See: http://www.igsoc.org/symposia

29 June–3 July

9th International Conference on Permafrost
Celebrating the 25th Anniversary of the formation of the International Permafrost Association
University of Alaska Fairbanks, Fairbanks, AK, USA
See: http://www.nicop.orgn

7 July

IPY Early Career Polar Researchers Workshop 2008
St Petersburg, Russia
Contact: Narelle Baker (npmb2@cam.ac.uk), Liz Thomas (LITH@bas.ac.uk)

8–11 July

SCAR/IASC 2008 Open Science Conference
St. Petersburg, Russia
See: http://www.ipy.org/index.php?/ipy/detail/scar_open_science_conference

17–22 August

****International Symposium on Dynamics in Glaciology**
Limerick, Ireland
Contact: Secretary General, International Glaciological Society
See
http://www.igsoc.org/symposia/2008/ireland/

18–25 August

IAVCEI General Assembly
Reykjavík, Iceland
See General Assembly website – http://www.jardvis.hi.is/page/I08-intro and Glaciovolcanism Special Session – http://www.jardvis.hi.is/page/I08-SYM3

3–11 September

The XIV Glaciological Symposium on Glaciology from International Geophysical Year to International Polar Year
Irkutsk, Russia
Contact: Yuliya Rayskaya: gs2008@onlinereg.ru
See http://www.onlinereg.ru/gs2008

8–11 September

10th International Symposium on High Mountain Remote Sensing Cartography, (HMRSC-X)
ICIMOD, Kathmandu, Nepal
See http://menris.icimod.net/HMRSC-X/

18–20 September

International Forum for Research into Ice Shelf Processes (FRISP)
A joint meeting with the West Antarctic Ice Sheet (WAIS) Initiative
Losehill Hall, Hope Valley, Derbyshire
Contact: FRISP – Adrian Jenkins (a.jenkins@bas.ac.uk); WAIS – Bob Bindschadler (robert.a.bindschadler@nasa.gov)

20–24 September

****International Workshop on World Glacier Inventory**
Cold and Arid Regions Environmental and Engineering Research Institute
Lanzhou, China
Contact: Professor Shiyin Liu (liusy@lzb.ac.cn)

21–27 September

International Snow Science Workshop, ISSW
Whistler, Canada
See http://www.issw2008.com/

24–28 November

Fourth EGU Alexander von Humboldt International Conference
The Andes: Challenge for Geosciences
Santiago de Chile
Contact: Peter Fabian (EGU) (peter.fabian@wzw.tum.de); René Garreaud (Universidad de Chile) (rgarreau@dgf.uchile.cl)

2009

16–20 March

****International Symposium on Snow Avalanches and Snow Science**
Manali, India
Contact: Secretary General, International Glaciological Society

27–31 July

****International Symposium on Glaciology in the International Polar Year**
Newcastle, UK
Contact: John Woodward (john.woodward@unn.ac.uk)
Secretary General, International Glaciological Society

27 September–2 October

International Snow Science Workshop, ISSW
Davos, Switzerland
See http://www.issw2008.com/

2010

31 May–4 June

****International Symposium on Sea Ice**
Tromsø, Norway
Symposium theme: The role of sea ice in the physical and biogeochemical system
Contact: Secretary General, International Glaciological Society

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ICE

Editor: M.M. Magnússon (Secretary General)

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